REMARKS

Claims 1-31 and 48-79 are all the active claims previously pending in the application, with new claims 117 – 120 being added by this Amendment. Of these claims, claims 1 – 3, 11 – 15, 48 – 51 and 59 – 62 are rejected under 35 U.S.C. § 102 as anticipated by Palese. The remaining active claims, save claims 7, 23, 55 and 71 which are merely objected to, are rejected over the combination of Palese with a series of secondary references under 35 U.S.C. § 103. Applicants further amend the claims for clarification and precision of language, and traverse the rejections. Specifically, claims 1, 16, 48, and 64 are amended for specificity.

CLAIM REJECTIONS UNDER 35 U.S.C. §102(b)

The examiner rejected claims 1-3, 11-15, 48-51, and 59-62 as anticipated by Palese (2002-0131164).

In the interest of expediting prosecution, applicant has further amended the pending independent claims without prejudice, to even further distinguish over Palese. The independent claims now explicitly recite various features implicit or inherent in the previously rejected independent claims.

In particular, in order to further distinguish the array configuration disclosed by Palese, each of the active independent claims was previously amended to specify that the composite pulses of the invention are *all* amplified by the same fiber amplifier (which could of course be one of a series of serially-arranged fiber amplifiers), as disclosed in, e.g., Fig. 6 of the present application reproduced below. The present amendment builds upon this limitation by now

additionally requiring that each pulse to be amplified propagates along a common optical path, through the same gain medium. This amendment makes it crystal clear that there is only one optical path in the invention, in contrast to the multitude of paths in Palese.

Support for applicant's amended claim language is found in at least Figures 1a-3b, Figure 6, in paragraphs [0045]-[0051], and Figures 8 and 9 of U.S. Patent Application Publication Number 2005/0226287, corresponding to the present application (hereinafter referred to as the '287 publication).

As previously argued, the Palese reference employs a large array, including a multiplicity of individual fiber amplifiers, each having its own cavity and gain medium. These fiber amplifiers *individually* amplify light of different wavelengths, the array outputs being received and overlapped coherently via a compressor optically coupled to the array at its downstream end. Palese therefore does not disclose the claimed features. Figure 1 of Palese and the associated text disclose a parallel array of diodes configured to deliver beams to corresponding multiple fiber amplifiers. Figures 2-5 and the associated text of Palese teach spatially distributing each pulse from a high-repetition rate mode-locked laser along multiple propagation paths so that chirped pulses temporally overlap in a fiber amplifier array.

The example of Figure 6 of the present application will further clarify applicant's position:

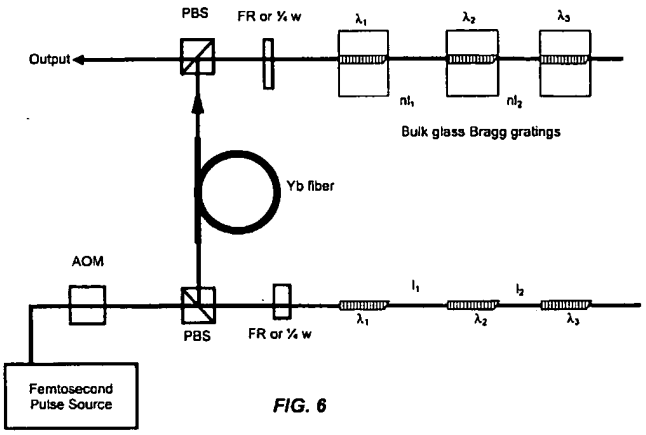

FIG. 6

Fig. 6 shows how pulses may be generated in the common path. A series of chirped fiber stretcher gratings operate on different portions of the spectrum of a given pulse output from the femtosecond source. Thus, different spectral components of the pulse are temporally separated, and all of the different components are amplified in a single Yb amplifier. Thus, there is no spatial separation of pulses, whereas the totality of the Palese disclosure deals with spatial separation and multiple paths.

Claims 1 and 48 have been amended as aforesaid. Claims 2-3, and 11-15 include all features of claim 1. Similarly, rejected claims 49-50 and 59-62, include all features of claim 48. Palese does not anticipate these claims, and thus the rejection under 35 U.S.C. § 102 must be withdrawn.

The Examiner will appreciate that the current claim language positively excludes the use of a parallel or array configuration as disclosed by Palese. Further, it would be impossible to modify Palese to achieve the inventive configuration, and to even attempt to do so would be directly contrary to the entirety of the teachings of the Palese disclosure.

Accordingly, the invention as now clarified is clearly distinguished from, and not an obvious departure from Palese.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

The examiner rejected claims 4-6, 8, 16-22, 24, 26-31, 52-54, 56, 64-70, 72, 75-79 as obvious over Palese in view of Kane (6219142).

Similarly, the examiner rejected claims 9, 25,57,73 over Palese in view of Kane and further in view of DeSimone (5933274).

The examiner also lists claims 10, 58, and 74 as being disclosed by Kane at page 4 of the Office Action)

All independent claims now recite features not disclosed in Palese. The secondary references do not cure the insufficiencies of Palese. Therefore, the features of the amended claims are not found in the combination of references. A prima-facie case of obviousness has not been established.

Notwithstanding the absence of a prima-facie case, applicant once again submits the claimed subject matter is not obvious. The elements identified in the secondary references

establish, at best, that various claimed optical elements are individually known, but in no way lead to applicant's unique combination, either in structure or function.

Applicant further submits that the claims are not obvious for at least the following reasons.

1. The examiner rejected the claims without articulating reasons why the combinations are obvious, and
2. Applicant disagrees that certain features are disclosed by Kane and/or DeSimone as set forth in examples below.

Example 1: Various pending claims recite "*means for optically converting a percentage -- or portion -- of generated laser pulses to other frequencies*". The examiner cited Figure 1 of Kane for this feature. The Figure includes a FROG device and a non-linear medium. However, that is where any similarity with the "*means for optically converting..*" ends. The function and structure of applicant's "*means*" is distinct from Kane's FROG device. Applicant's specification discloses active variation of the frequencies, control of frequencies, and combining frequencies (e.g.: harmonics) as various alternatives. For example , see paragraphs [0014], [0034], [0059] of the '287 publication. This is a completely different function from the use of an optical converter in Kane, associated with FROG.

Example 2: The spectrometer as disclosed and claimed by Applicant is configured to monitor the NLO (converter) in a distinct arrangement. Kane discloses a spectrometer in isolation, and does not achieve the functionality or combination as claimed.

Example 3: The examiner cited DeSimone for a disclosure of "*steering optics*". DeSimone discloses a dye laser integrated with a microscope. However, applicant's "beam steering"

structures may include electro-mechanical, piezoelectric, or solid-state beam deflectors. The beam steering components may be used in combination with other components to provide high speed operation and dynamic adjustment for variation within the apparatus. Moreover, the components may cooperate in response to information regarding status of a substrate, laser performance, environmental conditions, and various process parameters . For example, see paragraphs [0065][0070][0071] of the '287 publication.

The Kane and DeSimone references clearly cannot bridge the deficiencies of Palese, and thus the various combinations of teachings cobbled by the Examiner fail for the same reasons as discussed with respect to Palese alone. Further, Applicants would comment once again that the secondary references only establish, at best, that their various optical components are individually known in the art, but in no way lead to the unique combination claimed by Applicants, either in structure or functionality. For this reason, the subsidiary rejections under § 103 represent no more than an attempt at hindsight reconstruction of the invention.

For all of the reasons enumerated above, the Examiner's rejections under 35 U.S.C. § 103 fall short of applicable standards for establishment of obviousness, and accordingly withdrawal of these rejections is warranted, and solicited.

NEW DEPENDENT CLAIMS:

New dependent claims have been added directed to the following features:

> ...the laser means comprises a pulse source and a modulator disposed between said source and said amplifier....

...the pulse source produces pulse widths in the range of femtoseconds to picoseconds...

...the composite pulses within said burst comprise at least one of time separation, a different pulse width, a different peak power, a different wavelength, and a different polarization...

...the beam manipulation means produces a beam at a fundamental frequency, at least one harmonic beam at a multiple of said fundamental frequency, and is configured to transmit information for diagnostics from said beam manipulation means to said control means.

These claims round out the scope of protection sought for the invention and at the same time include features unknown to the cited references.

ALLOWABLE SUBJECT MATTER

Applicant appreciates the allowability of claims 7, 23, 55, and 71. However, based on the foregoing, applicant submits all pending claims are now in condition for allowance which is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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